

TITLE: METHOD AND EQUIPMENT FOR MAKING PLASTIC  
FLOOR TILES WITH ONE ROUND OF PROCESSING

BACKGROUND OF THE INVENTION

This invention relates to a method and equipment for  
5 making plastic floor tiles, particularly to one possible to make  
plastic floor tiles of different thickness with one round of  
processing.

For the present, the thickness of a plastic floor tile made  
by a conventional compress-extending machine is less than  
10 0.5mm. If a plastic floor tile with its thickness over 0.5mm is  
to be made, more than two layers of the plastic floor tiles have  
to be processed, to fuse them together to form a plastic floor  
tile with thickness more than 0.5mm. This problem of  
complicated processing hasn't been solved so far since it was  
15 disclosed in a Taiwan Patent No. 50877.

Specifically, to make plastic floor tiles of different  
thickness, two plastic floor tiles with 0.5mm thick have to be  
heated to a proper temperature (about 180°C to 220°C) first to  
permit these two plastic floor tiles fused together, and, if a  
20 plastic floor tile three times thicker than an original one is  
required, a third plastic floor tile has to be added for  
processing once more, thus not only complicating processing,  
but also liable to render respective layer of such fused plastic  
floor tile detached automatically due to high temperature.

25 Besides, the curving and irregular lines on the surface of

a conventional plastic floor tile are commonly formed in a way of gluing, pressing or printing, but such curving and irregular lines are possible to disappear after used and rubbed for a long period of time, greatly affecting its aesthetic feeling.

5 Further, the plastic floor tiles made in shape in the disclosed Taiwan Patent No. 50877 are likely to split due to ingredients of the material used.

Another conventional way of making plastic floor tiles is by gluing a plurality of layers together, as shown in Fig. 1. In  
10 this way, two or more units of press rollers A1, A2 are provided. Firstly, a sundry-colored bottom plate B is compressed by the press roller unit A1 and then glued together with a white-separating material C and a colored surface material D and finally compressed and pasted  
15 together by the press roller unit A2 to form a plastic floor tile (see enclosed No. 1, 2 and 3) with a colored surface. The white separating material C is used in order to prevent the sundry-colored bottom plate B from being seen through the top colored surface to ensure its aesthetic feeling. But such a  
20 plastic floor tile formed by pasting together three layers of different grains is likely to reveal the different-colored bottom plate after used and worn off after a certain period of time, spoiling its aesthetic appearance.

#### SUMMARY OF THE INVENTION

25 The objective of this invention is to offer a method and

equipment for making plastic floor tiles of different thickness with one round of processing, possible to economize processing time, increase qualified percentage of products and heighten competitive force of products.

5       The features of this invention are described below:

1. In manufacturing method, a long-shaped polyvinyl chloride (PVC) of one color or of different colors is heated and compressed to extend in shape by a cloth-gluing machine, adjustable for freely changing the thickness of a plastic floor  
10   tile.

2. In equipment, two heating devices are provided respectively beside the second and the third press roller units, and the temperature of the heating device is set around 800 °C depending on the thickness of plastic floor tiles  
15   required.

#### BRIEF DESCRIPTION OF DRAWINGS

This invention will be better understood by referring to the accompanying drawings, wherein:

Fig. 1 is a cross-sectional view of a two-stage processing  
20   in making a conventional plastic floor tile;

Fig. 2 is a cross-sectional view of a process of making a plastic floor tile of different thickness in the present invention;

Fig. 3 is another cross-sectional view of the process of  
25   making a plastic floor tile of different thickness in the present

invention;

Enclosed No.1: A product made with a conventional method.

Enclosed No.2: Another product made with a  
5 conventional method.

Enclosed No.3: Another product made with a conventional method.

Enclosed No.4: A product made with the method in the invention.

10 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of a method and equipment for making plastic floor tiles of different thickness in the present invention, as shown in Fig. 2, includes long polyvinyl chloride (PVC) fed in a compress-extending machine 2 having a  
15 plurality of press roller units and two heating devices 210, 220. In this embodiment three roller units are illustrated.

The long polyvinyl chloride (PVC) 1 can be of one color or different colors for producing various colored plastic floor tiles. The long-shaped PVC is first heated and carried to the  
20 first press roller unit 20 composed of two press rollers 200 and 201 and then compressed to extend by the first press roller unit 20 and formed into a half-finished product 10, because the press rollers 200 and 201 can automatically generate heat up to 180°C -220°C to soften long PVC and make  
25 it fused in shape.

Then, this first half-finished product 10 is carried to a second press roller unit 21 consisting of two press rollers 201 and 21. The press roller 21 can also automatically generate heat up to 180°C -220°C , with a heating device 210 positioned  
5 beside it to supply a comparatively high temperature to the first half-finished product 10 to let it completely heated with a balanced temperature and compressed by the second press roller unit 21 so as to make a second half-finished product 11 comparatively thick.

10 Next, the second half-finished product 11 is moved to a third press roller unit 22 composed of two press rollers 21 and 22, compressed in shape. And, in order to make plastic floor tiles of different thickness, a second heating device 220 is provided beside the press roller 22, having a same function as  
15 the first heat-increasing device 210. An ideal temperature generated by the heating devices 210 and 220 is around 800°C , but, actually, a high temperature required can be adjusted according to the thickness of a finished plastic floor tile 12 needed and the speed of manufacturing process.

20 In brief, with the method and the equipment of this invention, plastic floor tiles of different thickness (from 0.5mm to 3mm) can be made with only one round of processing, not only enhancing qualified percentage of products but also increasing their aesthetic appearance and  
25 value by marbleizing the plastic floor tiles, as shown in

Enclosed photo No. 4. And, if a grain roller 3 is additionally provided behind the compress-extending machine, the plastic floor tiles of this invention can be shaped with various solid grains on surface, with value of products greatly increased.

5 Another preferred embodiment of a method and equipment for making plastic floor tiles of different thickness in the present invention, as shown in Fig. 3, includes long PVC 1 heated and compressed by another roller unit 4 and formed into a first half-finished product 10. Then this  
10 half-finished product 10 is heated by one or more heating devices and once more compressed by another roller unit 6 to finish the plastic floor tiles of this invention with one round of processing, having natural grains on their surface and different thickness. Additionally, the roller units 4 and 6 can  
15 be provided with one or more units, and a heating device 5 can be additionally provided in front of the first roller unit 4.

To sum up, the finished plastic floor tile of this invention, as shown in Enclosed No. 4, has the same natural grains inside and outside and these natural grains can keep  
20 unchanged even if used for a long time, so that it is capable to keep aesthetic appearance of its surface grains and maintain decorative integration of a floor, and further economizing processing cost, lowering its selling price, elevating qualified percentage of products and increasing competitive force.

25 While the preferred embodiments of the invention have

been described above, it will be recognized and understood that various modifications may be made therein and the appended claims are intended to cover all such modifications that may fall within the spirit and scope of the invention.

5

THE PATENT OFFICE